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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,940	04/07/2006	Masayuki Daikuhara	2006-0504A	8516

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EXAMINER	
HUFTY, JOHN PAGE	
ART UNIT	**PAPER NUMBER**
3747	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/29/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

NT

Office Action Summary	Application No.	Applicant(s)	
	10/574,940	DAIKUHARA ET AL.	
	Examiner	Art Unit	
	John P. Hufty	3747	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-5 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-5 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 7 April 2006 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date 7 April 2006.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lucier et al. in view of Hoshi et al. Japanese Patent 08-135,543. Lucier teaches a returnless fuel system. Lucier lacks the returnless pressure regulator of applicant's claim 1 and check valve of claim 5. Hoshi teaches a returnless pressure regulator with a check valve in the line between the pump and regulator for use in a returnless fuel system to reduce pressure fluctuation at the injectors (abstract).

A person of ordinary skill in the art of fuel systems has an undergraduate level degree in mechanical engineering or the equivalent from on the job experience.

Additionally this person is very knowledgeable in the pressure concerns within a fuel delivery system.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to combine Lucier with Hoshi to improve the performance of a returnless fuel system.

Applicant's claims 1, 4, and 5 are below with the relevant citations from Lucier and Hoshi.

1. A fuel supply system to introduce fuel from a fuel tank to an injector through the order of a fuel pump (Lucier; feature 30) and a pressure regulator (Hoshi feature 6): wherein said fuel pump discharges the amount of fuel in proportion to the engine revolution when below a specific engine revolution and discharges an almost constant amount when above the specific engine revolution (Lucier; column 3 line 45 –67); and wherein a returnless pressure regulator is adopted as said pressure regulator (Lucier abstract; Hoshi abstract).

4. The fuel supply system according to claim 1 wherein a positive displacement pump which intakes and discharges a specific volume of fluid is adopted as said fuel pump (Lucier fig. 2 feature 30).

5. The fuel supply system according to claim 1, wherein a check valve is disposed either between said vapor-liquid separating device and said fuel pump or between said fuel pump and said pressure regulator (Hoshi feature 2b).

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lucier and Hoshi as applied to claim 1 above, and further in view of Nakai et al.

To the extent that Lucier and Hoshi do not expressly teach the use of a low pressure pump of applicant's claim 2 and the element locations of applicant's claim 3. Nakai teaches these elements and locations for use in an outboard motor with a compact size drawing fuel from a tank on the hull side of the boat(abstract, column 7 line 12).

Therefore it would have been obvious to one of ordinary skill in the art as described above at the time of invention to combine Lucier and Hoshi with Nakai for an outboard fuel system with optimal engine size drawing fuel from a tank located within a boat hull. Applicant's claims 2 and 3 are listed below with the relevant citations.

2. The fuel supply system according to claim 1: comprising a low pressure fuel pump (Nakai 78) which pressure is lower than said fuel pump and a vapor-liquid separating device (Nakai fig 4 feature 80) between said fuel tank and said fuel pump; wherein said low pressure fuel pump discharges fuel from said fuel tank to said vapor-liquid separating device, and said fuel pump discharges fuel from said vapor-liquid separating device to said pressure regulator (Nakai fig. 4 features 80, 78, 88).

3. The fuel supply system according to claim 2, wherein said fuel pump is located above said low pressure fuel pump, and said low pressure fuel pump is located above said vapor-liquid separating device (Nakai fig 4; features 80, 78, 88).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P. Hufty whose telephone number is 571-272-9966. The examiner can normally be reached on 9:00 am - 5:00pm, Mon- Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen K. Cronin can be reached on 571-272-4536. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JPH

STEPHEN K. CRONIN
SUPERVISORY PATENT EXAMINER